Counterfeit Electronics NASA Update

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Counterfeit Electronic Components Committee

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Agenda

- Counterfeit Parts in the News
- NASA Updates
- SAE AS5553 Updates







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STORY HIGHLIGHTS

- Armed Services Committee to look into counterfeit electronics in military equipment
- Commerce Dept. study has found the problem posed to the military is serious
- Study: The most common abuse was the sale of lowergrade microcircuits
- China is by far the most common source of counterfeit parts, study found

Counterfeit Electronics - NASA Update Phil Zulueta – 6/29/2011

Senate panel to probe counterfeit military parts problem

By Larry Shaughnessy, CNN Pentagon Producer

Washington (CNN) -- The risk of counterfeit electronics being used in military equipment has prompted a congressional investigation, the top senators on the Senate Armed Services Committee announced Wednesday.

"The presence of counterfeit electronic parts in the Defense Department's supply chain is a growing problem that government and industry share a common interest in solving," committee Chairman Carl Levin, D-Michigan, and Sen. John McCain, R-Arizona, the ranking member, said in a statement.

The investigation follows a Commerce Department study that found counterfeit parts pose a serious problem for the U.S. military.

The committee hopes the investigation will help "determine the source and extent of this problem and identify possible remedies for it."

The 2010 study by the Commerce Department found the problem of counterfeit parts touched nearly 40% of the DoD's parts supply



Federal agencies launch "Operation Chain Reaction"

U.S. Immigration and Customs Enforcement (ICE) sent this bulletin on 06/14/2011 03:08 PM EDT

Federal agencies launch "Operation Chain Reaction"

Operation will focus on counterfeit items entering the US government supply chain

WASHINGTON - The National Intellectual Property Rights Coordination Center (IPR Center) has announced "Operation Chain Reaction," a new comprehensive initiative targeting counterfeit items entering the supply chains of the Department of Defense and other U.S. government agencies.

Nine of the 18 IPR Center members are participating in "Operation Chain Reaction." They include:

- U.S. Immigration and Customs Enforcement (ICE), Homeland Security Investigations (HSI)
- U.S. Customs and Border Protection (CBP)
- · Federal Bureau of Investigation
- Naval Criminal Investigative Service
- Defense Criminal Investigative Service (DCIS)
- U.S. Army Criminal Investigative Command, Major Procurement Fraud Unit
- General Services Administration, Office of Inspector General
- · Defense Logistics Agency, Office of Inspector General
- . U.S. Air Force, Office of Special Investigations

[&]quot;Counterfeit and pirated goods present a triple threat to America," said ICE Director John Morton. "They rob Americans of jobs and their innovative ideas; fuel organized crime; and create a serious

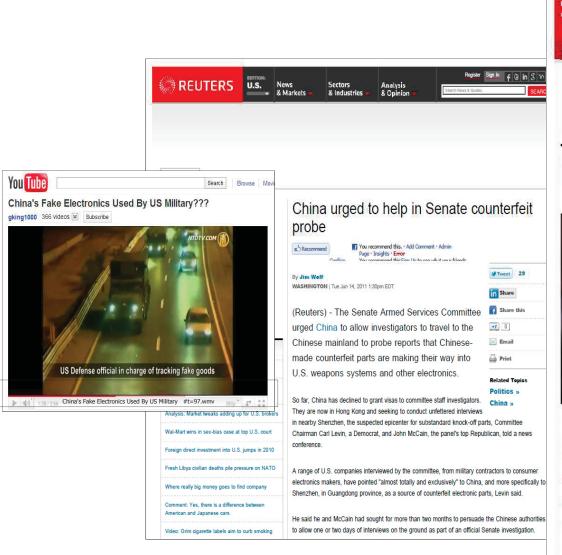


Examples of recent investigations involving counterfeit products entering the federal supply chain include:

- An investigation uncovered the purchase of counterfeit Cisco Gigabit
 Interface Converters by an individual since sentenced to prison who
 intended to sell them to the Department of Defense for use by the Marine
 Corps to transmit troop movements, relay intelligence and maintain
 security for a military base.
- An investigation uncovered a global procurement and distribution network based in California that provided counterfeit integrated circuits to various governmental agencies, including the military and prime Department of Defense contractors. Agents conducted undercover purchases from individuals within the company under official Navy contracts and were provided counterfeits for weapons platforms.
- An investigation identified a Florida-based electronics broker providing counterfeit integrated circuits to a Department of Defense prime contractor fulfilling a Navy contract for components destined for implantation into ship and land-based antenna.



- ICE HSI investigated nearly 2,000 intellectual property cases last fiscal year, which resulted in 365 arrests, 216 indictments and 170 convictions.
- ICE HSI and CBP also made 19,959 IPR seizures topping \$1.4 billion manufacturer's suggested retail price (MSRP) in FY 2010 a 34 percent increase from the previous fiscal year.
- Computer hardware was one of the top commodities seized, increasing five-fold from FY 2009 to FY 2010, including a \$2.3 million ICE HSI seizure that included counterfeit military-grade semi-conductors.
- Report IP theft or learn more about the IPR Center at www.IPRCenter.gov





U.S. wants China's help in stopping counterfeit electronic parts

By Larry Shaughnessy, CNN Pentagon Producer: June 15, 2011 – Updaled 0515 GMT (1315 HKT)



U.S. Senate Armed Services Committee Chairman Sen. Carl Levin (D-MI), left, and rainking member Sen. John McCain (R-AZ) speak to the media during a news conference June 14.

STORY HIGHLIGHTS

- Senate panel wants staff to Investigate in Guangdong, but China won't grant visas
- Fake parts are in crucial U.S. weapons, study shows
- Nearly 40% of the Pentagon's parts supply chain touched by problem of counterfeit parts, report says

RELATED TOPICS

Washington (CNN) -- For months, the U.S. has said it's aware that counterfeit electronic parts, usually from China, posed a serious and growing problem for the U.S. military. Now the Senate Armed Services Committee is investigating the counterfeit parts problem and wants China's help, two leading senators said Tuesday.

The committee has staffers in Hong Kong trying to get into Shenzen, in Guangdong province China, where the committee believes most of the counterfeiting allegedly occurred. But the Chinese are refusing to grant the Americans visas to visit Guangdong, the senators said.

Sen. John McCain of Arizona, the top Republican on the committee, said China should want to help with the investigation. "It should be in Chinese interest not to have counterfeiting of these electronic parts going on because it would harm legitimate Chinese companies as well." McCain said at a Capitol Hill news conference Tuesday.

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AN ACT to authorize the programs of the National Aeronautics and Space Administration for fiscal years 2011 through 2013, and for other purposes

SEC. 1206. COUNTERFEIT PARTS.

(a) IN GENERAL.—The Administrator shall plan, develop, and implement a program, in coordination with other Federal agencies, to detect, track, catalog, and reduce the number of counterfeit electronic parts in the NASA supply chain.



- (b) REQUIREMENTS.—In carrying out the program, the Administrator shall establish—
 - 1) counterfeit part identification training for all employees that procure, process, distribute, and install electronic parts that will
 - a) teach employees how to identify counterfeit parts;
 - b) educate employees on procedures to follow if they suspect a part is counterfeit;
 - c) regularly update employees on new threats, identification techniques, and reporting requirements; and
 - d) integrate industry associations, manufacturers, suppliers, and other Federal agencies, as appropriate;
 - 2) an internal database to track all suspected and confirmed counterfeit electronic parts that will maintain, at a minimum
 - a) (companies and individuals known and suspected of selling counterfeit parts;
 - b) (parts known and suspected of being counterfeit, including lot and date codes, part numbers, and part images;
 - c) (countries of origin;
 - d) (sources of reporting;
 - e) (United States Customs seizures; and
 - f) (Government-Industry Data Exchange Program reports and other public or private sector database notifications; and
 - (3) a mechanism to report all information on suspected and confirmed counterfeit electronic parts to law enforcement agencies, industry associations, and other databases, and to issue bulletins to industry on counterfeit electronic parts and related counterfeit activity.

Jet Propulsion Laboratory

California Institute of Technology

National Aeronautics and Space Administration

(c) REVIEW OF PROCUREMENT AND ACQUISITION POLICY.—

- 1) IN GENERAL.—In establishing the program, the Administrator shall amend existing acquisition and procurement policy to purchase electronic parts from trusted or approved manufacturers. To determine trusted or approved manufacturers, the Administrator shall establish a list, assessed and adjusted at least annually, and create criteria for manufacturers to meet in order to be placed onto the list.
- 2) CRITERIA.—The criteria may include
 - a) authentication or encryption codes;
 - b) embedded security markings in parts;
 - c) unique, harder to copy labels and markings;
 - d) identifying distinct lot and serial codes on external packaging;
 - e) radio frequency identification embedded into high-value parts;
 - f) physical destruction of all defective, damaged, and sub-standard parts that are by products of the manufacturing process;
 - g) testing certifications;
 - h) maintenance of procedures for handling any counterfeit parts that slip through;
 - i) maintenance of secure facilities to prevent unauthorized access to proprietary information; and
 - j) maintenance of product return, buy back, and inventory control practices that limit counterfeiting.



(d) REPORT TO CONGRESS.—Within one year after the date of enactment of this Act, the Administrator shall report on the progress of implementing this section to the appropriate committees of Congress.



NPD 8730.2C, NASA Parts Policy

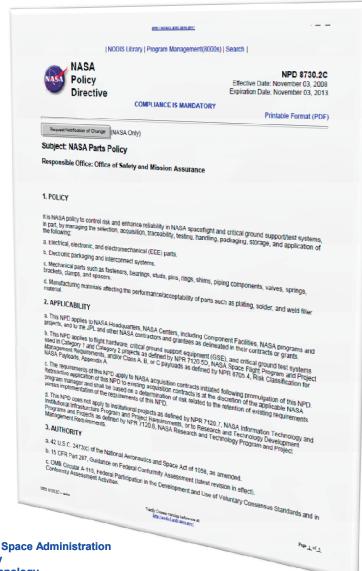
http://nodis3.gsfc.nasa.gov/

ATTACHMENT B: Counterfeit Parts Control Plan Contents

a. Parts Availability Process:

Maximize availability of authentic, originally designed, and qualified parts throughout the product's life cycle, including, for example:

- (1) Control of parts obsolescence.
- (2) Alternate/multiple sources.
- (3) Acceptable product substitutions.
- (4) System redesign.
- (5) Inventory control, parts sparing, and/or lifetime buy practices.
- (6) Planning for adequate procurement lead times in support of manufacturing and delivery schedules.



NPD 8730.2C, NASA Parts Policy

b. Procurement Process:

- (1) Assess potential sources of supply to determine the risk of receiving non-authentic parts. Original Component Manufacturers (OCM), OCM-authorized suppliers (e.g., franchised distributors), and authorized aftermarket manufacturers are considered to have low risk of supplying non-authentic parts. Assessment actions include surveys, audits, review of product alerts (e.g., GIDEP, ERAI), and analysis of supplier quality data to determine past performance. (Note: GIDEP and ERAI product alerts are accessible through NASA's Supplier Assessment System (http://sas.nasa.gov).)
- (2) Mitigate risks of procuring counterfeit parts from sources other than OCMs or authorized suppliers.
- (3) Factor risk of receiving nonauthentic parts into the source selection process.
- (4) Ensure that approved/ongoing sources of supply are maintaining effective processes for mitigating the risks of supplying counterfeit EEE parts.
- (5) Include applicable contract/purchase order quality requirements related to counterfeit parts prevention. Examples of quality requirements are provided in AS5553, including:
 - (a) Certificate of Conformance.
 - (b) Mandatory Product Tests and Inspections.
 - (c) Supply Chain Traceability.
 - (d) Federal Penalties Associated with Fraud and Falsification.
- (6) Specify contractor flow down of applicable counterfeit parts prevention requirements to their subcontractors.



NPD 8730.2C, NASA Parts Policy

c. Product Assurance Process:

Verify receipt of authentic conforming parts, commensurate with product risk. Product risk is determined by the criticality of the part and the assessed likelihood of receiving a nonauthentic part. Product assurance actions include review of data deliverables, verification of purchase order quality clause compliance, visual inspection, measurements, non- destructive evaluation (e.g., x-ray, hermeticity, marking permanency) and destructive testing (e.g., destructive physical analysis, thermal cycling, construction analysis).

d. Material Control and Disposition Process:

- (1) Identify and quarantine suspect or confirmed counterfeit parts.
- (2) Confirm conclusively whether the parts are authentic or counterfeit. This may include further part-level testing or communication with the parts' (supposed) OCM.
- (3) Upon confirmation that a part is counterfeit, identify and place on "Hold" all potential additional counterfeit parts in storage and identify installed counterfeit parts pending disposition by appropriate authorities.
- (4) Destroy, and/or submit to investigative authorities confirmed counterfeit parts. Counterfeit parts should only be returned to suppliers under controlled conditions so as to prevent their re-entry into the supply chain.

e. Reporting Process:

Report nonconforming, defective, and/or suspected counterfeit parts in accordance with NPR 8735.1, and for all cases involving counterfeit parts or other potential fraud, to the NASA Office of Inspector General and the NASA Director, Acquisition Integrity Program (AIP).



Counterfeit Parts Avoidance Training

FY11	NASA Center
October	GSFC
December	GRC
February	DFRC
March	KSC (Quality Leadership Forum)
April	SSC
May	GSFC
June	JSC

Counterfeit Parts Control Plans

- Drafted
 - MSFC
 - GSFC
- Released
 - JPL



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SAE G-19 Committee

- September 2007 G-19 Chartered
 - Develop Standard(s) suitable for use in aeronautic, space, defense, civil and commercial electronic equipment applications to mitigate the risks of counterfeit electronic components... will document recognized best practices in component management, supplier management, procurement, inspection, test/evaluation methods and response strategies when suspect or confirmed counterfeit components are detected.
- November 2008 NASA adopts AS5553 with update to NPD 8730.2C, NASA Parts Policy
- April 2009 SAE International released aerospace standard AS5553, Counterfeit Electronic Parts; Avoidance, Detection, Mitigation, and Disposition
- August 2009 DoD adopts AS5553



SAE G-19 Members

from Government, Defense and Industry Sectors

Government Members ...

- Defense Logistics Agency (DLA)
- Defense Contract Management Agency (DCMA)
- DOE National Nuclear Security Administration (NNSA)
- Federal Aviation Administration (FAA)
- Intelligence Advanced Research Projects Activity (IARPA)
- Ministry of Defence, UK
- National Aeronautics and Space Administration (NASA)
- USAF/NRO (The Aerospace Corporation)
- USAF Wright Patterson AFB
- US Army AMCCC Business Operations HQAMC
- US Army Aviation & Missile Command
- US Army Redstone Arsenal
- US Missile Defense Agency (MDA)
- US Navy Naval Air Warfare Center
- US Navy Naval Surface Warfare Center (NSWC) Crane
- US Navy NAVSEA Crane
- US Navy, Submarine Maintenance Engineering, Planning and Procurement (SUBMEPP) Activity
- US Department of Transportation

Note: Members function as individuals intending to represent the best interests of the industry, and not as agents or representatives of any organization with which they may be associated



SAE G-19 Members

from Government, Defense and Industry Sectors

Participating Industry Associations ...

- ACLASS Accreditation Services
- Aerospace Industries Association (AIA)
- ANSI-ASQ Accreditation Board (ANAB)
- Component Obsolescence Group (COG)
- The Electronic Components Supply Network
- EIA Standards and Technology Electronic Components
- ERAI, Inc.
- Independent Distributors of Electronics Association (IDEA)
- International Electrotechnical Commission Quality Assessment System for Electronic Components (IECQ)
- Performance Review Institute
- UK Electronics Alliance (UKEA)



SAE G-19 Members

from Government, Defense and Industry Sectors

Industry Members ...

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Aero Engine Controls

American Electronic Resource

Analytical Alternatives

Analytical Solutions

Applied DNA Sciences

Arcadia Components

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Arrow Electronics

Astute Electronics

BAE Systems (Operations)

BAE Systems

Ball Aerospace & Technologies

Boeing

Boeing Advanced Systems

Business Quality Process Management

Bechtel Plant Machinery

CALCE University Of Maryland

Celestica Corp. Technology & Engineering

China Aero-Polytechnology Establishment

Creative Electron

Crestwood Technology Group

DA-Tech

Derf Electronics

Det NortskeVeritas (DNV)

DPA Components International Electronic Supply Chain Solutions

Eltek Semiconductors

General Dynamics

General Dynamics UK

GE Aviation

Glenbrook Technologies

Goodrich Control Systems

Greenberg & Bass

Harris

Hi-Reliability Microelectronics

Hi-Rel Laboratories

Honeywell Aerospace Electronic Systems

Honeywell Int'l

Honeywell Technology Solutions

Infineon Technologies AG Integra Technologies

Jabil Circuits

Jacobs Engineereing

Jet Propulsion Laboratory

L-3 Communications - CSW

Left Coast Technical Solutions

Lockheed Martin Aeronautics

Lockheed Martin Missiles & Fire Control

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Microram Electronics

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Mouser Electronics

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N.F.Smith & Associates

NQA

Northrop Grumman

Orbital Sciences

Plexus

Premier Semiconductor Services

Process Sciences

Raytheon

Rochester Electronics

Sandia National Laboratories

Schlumberger HPS

Selex Galileo

Silicon Cert Laboratories

SMT Corp

SolTec Electronics

Sonix

Sonoscan

SRI International Sarnoff

Star Associates International

Trace Laboratories

TTI

Underwriters Laboratories, UL DQS

Westland Helicopters

White Horse Laboratories

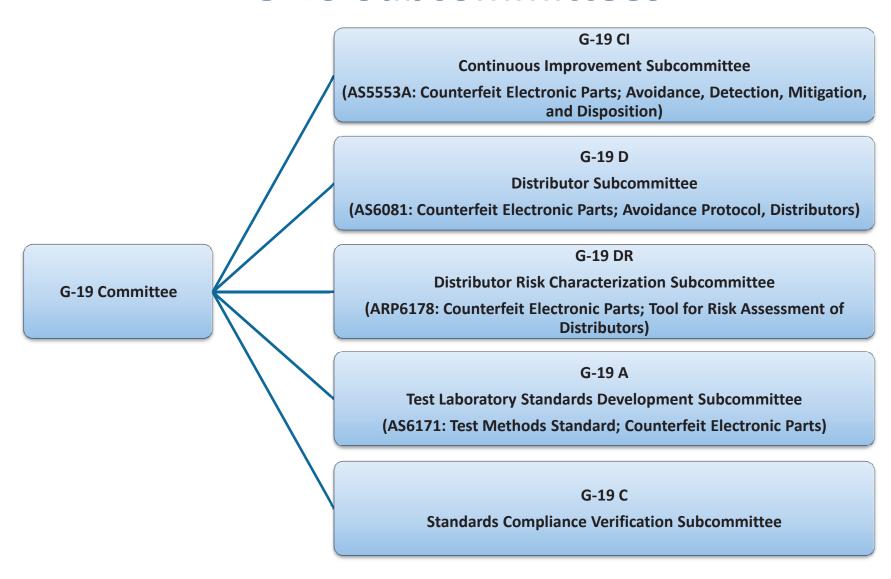
World Data Products

World Micro

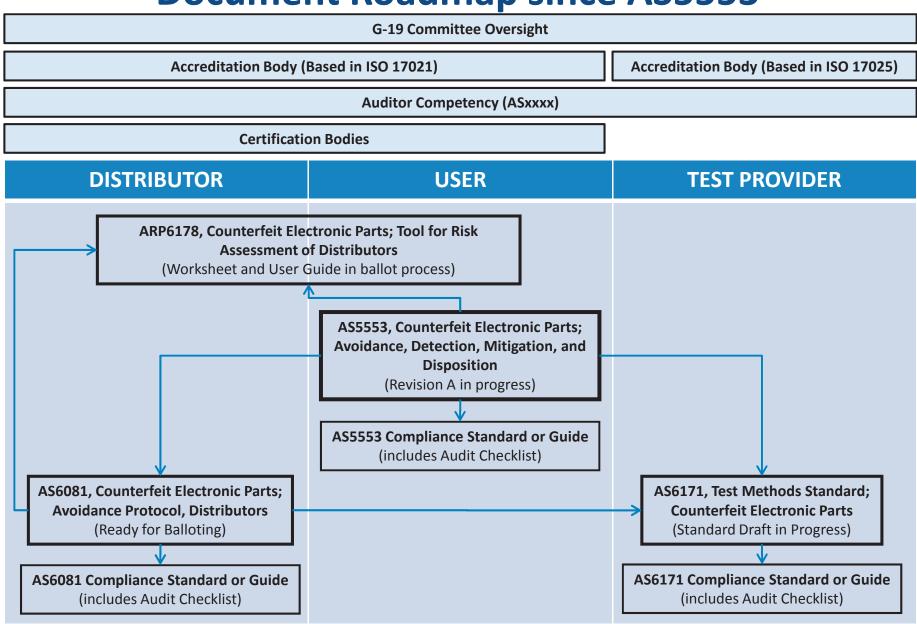
Wyle Laboratories



G-19 Subcommittees



Document Roadmap since AS5553



Summary

- U.S. Government and multiple Federal Agencies are reacting to the increasing threat of fraudulent and counterfeit electronic parts in the supply chain
- NASA is responding to these same threats through proactive involvement in Parts Policy Directives, Awareness Briefings at the NASA QLF, enhanced suspect Parts database reporting, support of VCS development and Counterfeit Parts Awareness Training of personnel
- The SAE G-19 Committee is addressing the global counterfeit electronic components threat through a set of international standards that establishes risk-based methods, practices and requirements for the entire supply chain



Counterfeit Electronic Parts; Avoidance, Detection, Mitigation, and Disposition

Thank you!



this standard are generic and intended procure electronic parts, regardless of

Product Status: In Stock

File Size: 314K

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Backup

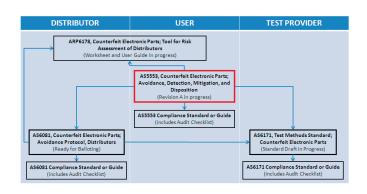
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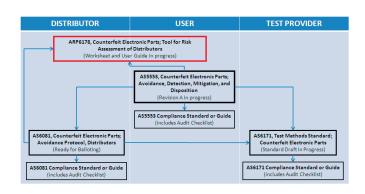


AS5553 - Counterfeit Electronic Parts; Avoidance, Detection, Mitigation, and Disposition



- Intended for use by Original Equipment Manufacturers (OEMs), organizations that procure electronic components/parts and/or assemblies containing such items
- Requirements to be applied/flowed down through the supply chain to all organizations that procure electronic components/parts and/or assemblies, regardless of type, size and product provided
- Mitigation of counterfeit electronic components/parts is riskbased and varies, depending on the desired performance or reliability of the equipment/hardware

ARP6178 - Counterfeit Electronic Parts; Tool for Risk Assessment of Distributors



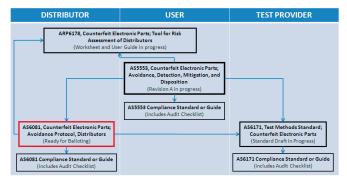
- Intended for use by organizations that procure electronic components from suppliers other than the original component manufacturer (OCM)
- Provides organizations with a tool to assess a supplier's capability to prevent, detect, contain and report suspect or confirmed counterfeit electronic components
- Not intended to replace certification compliance criteria



AS6081 - Counterfeit Electronic Parts; Avoidance Protocol, Distributors

organization

(Distributor)



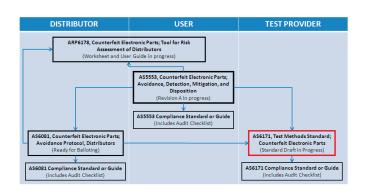
• Similar to AS5553, but contains prescriptive counterfeit parts avoidance requirements intended for distributors that purchase from the open market

customer

- OEMs can specify their suppliers comply with AS6081 to meet selected flow-down requirements of AS5553
- AS6081 requirements are intended to be applied/flowed down to distributor's suppliers
- Independent, third-party certification bodies (CBs) verify of compliance to AS6081

supplier

AS6171 - Test Methods Standard; Counterfeit Electronic Parts



- Standardize practices to detect suspect counterfeit electronic parts and to ensure consistency of test techniques and requirements across the supply-chain
- Includes external visual inspection, radiological inspection, xray fluorescence, tests for remarking and resurfacing, delid physical analysis, electrical tests, acoustic microscopy, optical/SEM inspection, FTIR/DSC/TMA testing and miscellaneous testing
- Level of testing is risk-based and includes sampling plans
- Accreditation of the Test Laboratory will be through ACLASS to ensure the impartiality and competence of the Test Lab



Terms and Definitions

Approved Supplier

Refurbished

Counterfeit Part

Suspect Part

Authority Having Jurisdiction

Upscreened

Aftermarket Manufacturer



Fraudulent Part

Refinished

Stocking Distributor

Homogeneous Lot Franchised Distributor

Broker Distributor

Uprated

Independent Distributor

Authorized Supplier



Definition – Suspect, Fraudulent and Counterfeit Part

Suspect Part

A part in which there is an indication by visual inspectical testing, or other information that it may have been misrepresented by the supplier or manufacturer unchangement the definition of fraudulent part or counterfeit part provided below.

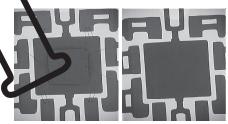


Any suspect part m srepresented to the customer meeting the customer's requirements.

Counterfei Part

A fraudulent partithat has been confirmed to be a copy, imitation or substitute that has been represented, identified, or marked as genuine, and/or altered by a source without legal right with intent to mislead, deceive or defraud.









http://www.aeri.com/counter feits.html

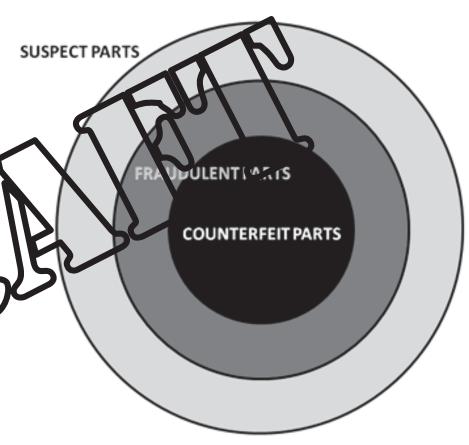


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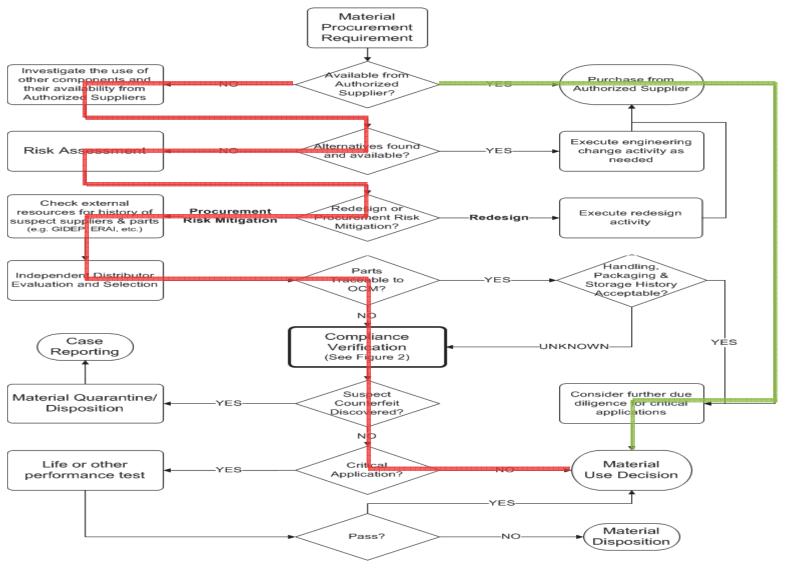
Definition – Suspect, Fraudulent and Counterfeit Part

Note: The following diagram depicts the above relationships between Suspect, Fraudulent and Counterfeit Parts. A Suspect Parts becomes a Fraudulent or Counterfeit Part through further evaluation and testing. All counterfeit parts are fraudulent, but not all fraudulent parts are counterfeit. There are leva distinctions between counterfel fraudulent parts. Legal counsel an the OCM should be consulted determine the nature and extent of these distinction





Risk Mitigation



AS5553 Revision A

- Worked by the G-19 Continuous Improvement (G-19 CI) Subcommittee, co-chaired by G-19 members from Selex Galileo UK and Component Obsolescence Group (COG)
- Majority of members from OEM/Aerospace/Defense/ Hi-Rel community and seeking same type of members from other countries
 - Recently added member from the UK Ministry of Defence (MoD)
- Primary tasks are to add international content, applicable global references and integrate selected AS6081 content

